

REMARKS

Claims 1-6, 8, 10-15, 17, and 18 are pending in this application. In an Office Action dated December 31, 2007 (OA), the Examiner rejected claims 1-6, 8, 10-13, 17 and 18, and allowed claims 14 and 15. In this response, Applicants respectfully traverse the rejection and request reconsideration of the rejected claims based on the following remarks.

In addition, Applicants do not necessarily agree with or acquiesce to the Examiner's characterization of the claims or the prior art, even if those characterizations are not addressed herein.

Claim Rejections under 35 U.S.C. § 103

Claim 1

The Examiner rejected claim 1 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,631,991 ("Cohen") in view of U.S. Patent No. 5,031,984 ("Eide") and U.S. Patent Publication No. 2004/0258369 ("Luo"). Applicants respectfully traverse the rejection and request that the Examiner withdraw the rejection based on the arguments provided below.

When making a determination of obviousness, the Examiner must (1) determine the scope and content of the prior art, (2) ascertain the differences between the claimed invention and the prior art, and (3) resolve the level of ordinary skill in the pertinent art. MPEP § 2141 (II), 8th Ed., Rev. 6 (Sept. 2007) (citing *Graham v. John Deere Co.*, 383 U.S. 1 (1966)). According to this section, "[a]scertaining the differences between the claimed invention and the prior art requires interpreting the claim language, see MPEP § 2111, and considering both the invention and the prior art as a whole" (emphasis added). MPEP § 2141 (II)(B). Further, the MPEP requires that the Examiner consider the claims as a whole by reciting "[i]n determining

the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.” MPEP 2141.02 (I) (citing *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530 (Fed. Cir. 1983)).

When an Examiner evaluates the references, according to MPEP § 2141.02 (VI), “[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.” MPEP § 2141.02 (VI) (citing *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)). Further, MPEP § 2143.01 (VI) recites “[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious” (emphasis added). MPEP § 2143.01 (VI) (citing *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)).

Claim 1 recites “a lens system oriented with respect to the multi-mode optical fiber stub to focus an optical beam exiting the multi-mode optical fiber stub onto an active area of an optical detector...wherein the optical detector is offset from the optical axis of the multi-mode optical fiber” (emphasis added). Within the OA, the Examiner rejected this claim based on the teachings of Cohen, Eide, and Luo. Regarding the rejection, the Examiner acknowledged that Cohen fails to disclose that the optical detector is offset from the optical axis of the multi-mode optical fiber. In an attempt to overcome this deficiency, the Examiner alleged that Luo discloses this claimed element. But, based on the MPEP and its supporting case law, Applicants respectfully request that the Examiner reconsider combining the features of Luo into Cohen.

Within the primary reference of Cohen, the description describes the need for alignment between a stub and an optical converter by stating “[i]n light of the foregoing, there exists a need

for an optical subassembly **that requires** relaxed mechanical tolerances, greater flexibility in material selection and **alignment along all three axes** to achieve an inexpensive but nonetheless functional and durable assembly" (emphasis added). Cohen at column 2, lines 40-44 (hereinafter notated as 2:40-44). Cohen then describes how his invention satisfies this need to align the optical converter and the stub along all three axes. Further, to meet this need, Cohen describes the precision that went into constructing the disclosed subassembly by stating:

To meet precision requirements, over ten precisely machined parts of stainless steel and ceramic are used in these OSAs. The alignment operations and the rigid fixing in place of the aligned structural parts (usually by soldering or high power laser welding) are complex and require considerable care to minimize transfer of the damaging heat to the semiconductor optoelectronic converter. A problem encountered in all alignment and fixing operations, whether fixing by epoxy, solder or laser welding, is the shifting of parts during the fixing by the action of the applied heat causing alignment to deteriorate and the coupling efficiency (CE) to be reduced. The alignment apparatus and procedure of the present invention is designed to alleviate or eliminate these alignment problems. (emphasis added)

Id. at 4:8-20.

According to the passage above, the precision that went into Cohen's subassembly was based on both alignment purposes *and* to minimize the transfer of the damaging heat. Thus, Cohen **requires** that the subassembly's components remain in their particular shape and configuration due to the complexity involving both the alignment and the minimizing of heat. Therefore, according to its disclosure, Cohen's subassembly should not be modified.

But the Examiner attempts to modify the precise positioning of Cohen's components by using Luo for the purpose of offsetting the alignment between the offsetting the optical fiber and opto-electric subconverter. However, by doing so, the Examiner ignored Cohen's explicit disclosure requiring its complex and precise positioning of components for the purposes of alignment *and* minimizing heat. To modify Cohen with Luo would destroy the purpose and

precision of the subassembly's components that were so carefully chosen by Cohen. Therefore, Applicants respectfully submit that, based on Cohen's own disclosure, one of ordinary skill in the art would not be motivated to modify Cohen with Luo as suggested by the Examiner.

Further, as acknowledged by the Examiner, Eide fails to overcome the deficiencies of Cohen and Luo. OA at 3. Therefore, Cohen in view of Eide and Luo fails to teach or suggest "a lens system oriented with respect to the multi-mode optical fiber stub to focus an optical beam exiting the multi-mode optical fiber stub onto an active area of an optical detector ... wherein the optical detector is offset from the optical axis of the multi-mode optical fiber" (emphasis added). For at least these reasons, Applicants respectfully submit that claim 1 is patentable over the cited references.

Claims 2 and 3

The Examiner rejected claims 2 and 3 under 35 U.S.C. § 103(a) as being unpatentable over Cohen in view of Eide and Luo, as applied to claim 1, and in further view of U.S. Patent No. 6,851,870 ("Deng"). Applicants respectfully traverse the rejection and request the Examiner to withdraw the rejection based on the following comments.

Claims 2 and 3 depend on claim 1. As stated above, Cohen in view of Eide and Luo fail to disclose "a lens system oriented with respect to the multi-mode optical fiber stub to focus an optical beam exiting the multi-mode optical fiber stub onto an active area of an optical detector...wherein the optical detector is offset from the optical axis of the multi-mode optical fiber." Kato fails to overcome the deficiency of Cohen, Eide, and Luo regarding claim 1. Thus, Applicants respectfully submit that claims 2 and 3 are allowable for at least the same reasons as claim 1.

Further, regarding claim 3, the Examiner alleged that Cohen's ferrule 6 is a sleeve. Applicants respectfully disagree because Cohen's ferrule appears to be part of the fiber stub, appears limited to only a single fiber, and Cohen is silent with respect to using ferrule 6 to explicitly couple a single-mode optical fiber and the multi-mode fiber stub.

Claims 4-6

The Examiner rejected claims 4-6 under 35 U.S.C. 103(a) as being unpatentable over Cohen in view of Eide and Luo further in view of U.S. Publication No. 2004/0159776 ("Richard"). Applicants respectfully traverse the rejection and request the Examiner to withdraw the rejection based on the following comments.

Claims 4-6 depend on claim 1. As stated above, Cohen in view of Eide and Luo fail to disclose "a lens system oriented with respect to the multi-mode optical fiber stub to focus an optical beam exiting the multi-mode optical fiber stub onto an active area of an optical detector...wherein the optical detector is offset from the optical axis of the multi-mode optical fiber." Richard fails to overcome the deficiency of Cohen, Eide, and Luo regarding claim 1. Thus, Applicants submit that claims 4-6 are allowable for at least the same reasons as claim 1.

Claim 8

The Examiner rejected claim 8 under 35 U.S.C. 103(a) as being unpatentable over Cohen in view of Eide and Luo further in view of U.S. Patent No. 5,737,467 ("Kato"). Applicants respectfully traverse the rejection and request that the Examiner withdraw the rejection based on the following comments.

Claim 8 depends on claim 1. As stated above, Cohen in view of Eide and Luo fails to disclose "a lens system oriented with respect to the multi-mode optical fiber stub to focus an

optical beam exiting the multi-mode optical fiber stub onto an active area of an optical detector...wherein the optical detector is offset from the optical axis of the multi-mode optical fiber.” Kato fails to overcome the deficiency of Cohen, Eide, and Luo regarding claim 1. Thus, Applicants respectfully submit that claim 8 is allowable for at least the same reasons as claim 1.

Claims 10-13

The Examiner rejected claims 10-13 under 35 U.S.C. § 103(a) as being unpatentable over Eide in view of U.S. Publication No. 2005/0002614 (“Zhong”). Applicants respectfully traverse the rejection and request the Examiner to withdraw this rejection.

Claim 10 recites “coupling a light beam from a single-mode optical fiber into a multi-mode fiber stub via a sleeve, wherein the sleeve aligns the single-mode optical fiber and the multi-mode fiber stub,” (emphasis added).

Eide discloses connecting a single-mode optical fiber with a multi-mode fiber stub using a mold having precision grooves that hold the fibers and adhesive 20 that sandwich the optical fibers in place. Eide at 4:11-22. Eide explicitly acknowledges the advantages of this adhesive by stating “[t]he ultraviolet-curable adhesive also has index matching characteristics [that] are advantageous when coupling optical fibers.” Eide at 3:58-63. Further, the mold and adhesive allow for Eide to connect link fiber 12 to two branch fibers 14 and 16. Eide at Fig 6 and 3:56-58. The Examiner acknowledged that Eide does not teach a sleeve wherein the sleeve aligns the single-mode optical fiber and the multi-mode fiber stub. OA at page 8. The Examiner then alleged that Zhong provides a sleeve that couples light from a single-mode fiber to a multi-mode fiber. OA at 8. The Examiner further asserted:

It would have been obvious to one of ordinary skill in the art at the time of the invention to position the sleeve of Eide so as to optically couple the multimode

fiber stub with a single-mode optical fiber, as taught by Zhong. The motivation would have been to more effectively and easily couple light from a light source through the small core single-mode fiber to a detector via the large core multimode fiber (emphasis added).

Id.

The Examiner must consider why one of ordinary skill in the art would combine Zhong's sleeve into Eide's mold and adhesive "so as to optically couple the multimode fiber stub with a single-mode optical fiber" when Eide's grooves of the mold and adhesive already provide this coupling feature. Further, Eide acknowledges the advantage of using this adhesive, which raises a serious question why one of ordinary skill in the art would connect the fibers using any other connecting means. In addition, Zhong does not provide a sleeve accommodating the link fiber to two branch fibers, as provided by Eide, because Zhong appears to only disclose a sleeve connecting a single fiber to a single fiber—not to both branch fibers needed to satisfy Eide. For at least these reasons, Applicants respectfully submit that one of ordinary skill in the art would not combine Eide in view of Zhong. Therefore, Applicants respectfully submit that claim 10 is allowable over the cited prior art.

Claim 11 depends on claim 10 and is allowable for at least the same reasons as claim 10.

Claim 12 recites "...a sleeve for coupling an optical fiber and a multi-mode fiber stub; wherein the sleeve aligns the optical fiber and the multi-mode fiber stub...", which is similar in scope to claim 10. Due to these similarities, Applicants respectfully submit that claim 12 is allowable over the cited prior art.

Claim 13 depends on claim 12 and is allowable for at least the same reasons as claim 12.

Claim 17

The Examiner rejected claim 17 under 35 U.S.C. § 103(a) as being unpatentable over Cohen in view of Deng and Zhong. Applicants respectfully traverse the rejection and request reconsideration based on the following remarks.

Claim 17 recites “wherein the multi-mode optical fiber stub is mounted in a stub holder, the stub holder being positioned in a receptacle.” The Examiner alleged that Cohen provides housing 2, which acts as a stub holder, but that Cohen fails to disclose a receptacle. The Examiner then asserted that Deng overcomes Cohen’s deficiency because Deng’s aperture A3 acts as a receptacle. To combine these references, the Examiner stated “[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to position the stub holder of Cohen in a receptacle as taught by Deng.” OA at page 10.

But Applicants respectfully submit that Cohen’s housing 2 is the same type of device as Deng’s housing A2. Each of these housings provides an aperture (Deng’s A3 and Cohen’s ferrule bore), both of which receive a ferrule. The Examiner must consider why one of ordinary skill in the art would place Cohen’s housing 2 into Deng’s aperture A3 when Deng’s housing A2 and Cohen’s housing 2 are the same type of device. For at least this reason, Applicants respectfully request that the Examiner withdraw the rejection because one of ordinary skill in the art would not fit Cohen’s housing 2 into Deng’s aperture A3.

Claim 18

The Examiner rejected claims 18 under 35 U.S.C. § 103(a) as being unpatentable over Cohen in view of Luo. Applicants traverse the rejection and request reconsideration based on the following remarks.

Claim 18 recites "...a lens system oriented with respect to the multi-mode optical fiber stub to focus an optical beam exiting the multi-mode optical fiber stub onto an active area of an optical detector, wherein the optical detector is offset from the optical axis of the multi-mode optical fiber." As shown above in the remarks presented for claim 1, one of ordinary skill in the art would not be motivated to combine Cohen and Luo in the manner claimed. Therefore, Applicants respectfully submit that claim 18 is allowable over the cited prior art.

Allowable Subject Matter

Applicants thank the Examiner for indicating that claims 14 and 15 are allowable over the prior art.

Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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